Corporate Division
Atari Institute for Educational Action Research

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COMPUTERS AND LIFELONG LEARNING:

CHANGING THE FACE OF EDUCATION

Ted M. Kahn, Ph.D.
Executive Director

We live in a time of exciting change and a world of sharp contrasts and paradoxes. Consider the following, for example; public criticism of education is feverishly high, while never have we known more about the nature of learning and ways to provide motivating, creative educational experiences to students of all ages. Or federal financial support for education seems (for most) all but nonexistent, and yet schools (driven by parents and the community) will double their purchase of personal computers over the next year. Or many teachers and researchers fear a lack of enough high-quality educational software, and yet teenagers are creating their own software businesses at ages as young as 11 or 12!

Using the language of Thomas Kuhn, we are witnessing a "paradigm shift" in public education, a shift which must be accompanied by a shift in our preceptions of what education is. For many years, we have tended to equate education with "formal schooling". However, a very simple arithmetic analysis shows that most of us will spend well over 90% of our lives out of the classroom and, yet, we certainly spend much of this time learning.

I feel that the development of the microcomputer has increased our ability to "learn how to learn", certainly one of the most sought-after goals of education. Furthermore, this learning may take place in a wide variety of settings (classrooms, museums, community centers, and the home), with flexible types of groups (alone, with friends, as a family) and over almost the entire span of ones lifetime (from early childhood to old age). Furthermore, some of the marvelous experiences of computer education outside of school are pointing the way for helping transform classrooms into the rich learning environments that most teachers want them to be.

The Atari Institute for Educational Action Research, part of Atari, Inc.'s corporate division, was founded to help bring visions of the future into clear focus today. Through its program of grants (computers, software, and cash stipends), support, conferences and networking, the Institute helps build "models of excellence" both in and outside the classroom.

During 1981-82, the Institute has given grants worth more than $700,000 to projects which span the entire spectrum of lifelong learning. Many of these projects have been small grants of one computer to promising people; others have been much more extensive in size and scope. These grants cover urban and rural settings, minorities and the poor, slow learners and gifted learners. Many have been collaborative efforts,

involving government agencies (such as the National Science Foundation) or private foundations (e.g., San Francisco Education Fund). Some projects move to the people (such as the Industry Education Council's Mobile Computer Van), and in others, people come to the project (the Lawrence Hall of Science or the Capital Children's Museum in Washington, D.C.).

Age, sex, race or previous background pose no barriers. We have seen excellent results with children as young as three (using software developed by The Learning Company in Portola Valley) or as old as eighty (at the University of San Francisco's Fromm Institute). Boys and girls, men and women, whites, blacks, hispanics and native Americans — the faces and bodies have the same sense of concentration, absorption, and spontaneous joy — the "aha" of peak experiences.

In summary, we need to widen our horizons and extend our notions of education to include opportunities throughout one's lifetime. Computers offer us a wonderful responsive learning environment and a powerful medium for developing curiosity, competence, and creativity — three other c's to match Governor Brown's "calculating, computing, and communicating with technology". Let us all work together towards the renewal of education by beginning with renewal of our vision of ourselves as lifelong learners. Our children are already paving the way for us.

Prepared By: Yolanda L. Jenkins, Ph.D.

ATARI INSTITUTE FOR EDUCATIONAL ACTION RESEARCH

INTERIM EVALUATION SUMMARY

FEBRUARY, 1983

NEW PRODUCTS

DEVELOPMENT, TESTING, REFINEMENT

PROJECTS	NO.	PRODUCTS/OUTCOMES
Early Childhood	1	
Bing School Stanford, CA		Field testing of software for preschool children
Elementary/Secondary	9	
George Washington H.S. Denver, CO		Development of manuals for PASCAL and FORTH for high school use
Dept. of Math San Francisco State Univ. San Francisco, CA		Development of computer-based math curriculum for middle school students
Mankato State Univ. Mankato, MN		Development of computer-based curriculum in citizenship for elementary and high school students
Coastal Ridge Research & Educational Center Point Arena, CA		Development of an instructional model in appropriate energy technology education for elementary school children
Scott Kim (individual person grant) Palo Alto, CA		Development of K-12th grade math curriculum based on computerized visualizations of math concepts
Cupertino School District, Music Dept. Cupertino, CA		Production of a series of 30-minute computer-based music lessons and the use of computers for students' creation of musical compositions for K-6th grade students
Mt. View-Los Altos Union H.S. District Mt. View/Los Altos, CA		Development of a computer-based educational planning/counseling module for high school students
Fairmount Elementary School San Francisco. CA		Development of computer-based reading program
McAteer H.S. San Francisco, CA		Development of computer as educational management tool for student government

Higher Education 15

Dept. of Math Stanford University Stanford, CA	Development of a computer-based college calculus course
School of Education Stanford University Stanford, CA	Development of interactive educational software for microcomputers
Dept. of Math University of Iowa Iowa City, IA	Development of transformational geometry curriculum for teachers
Greenfield Comm. College Greenfield, MA	Development of a human ecology project through computer-integrated simulation
Dept. of Physiology-Anatomy U.C. Berkeley Berkeley	Development of a computer-based physiology curriculum
Physics & Astronomy Lab Michigan State University East Lansing, MI	Development of physics computer lab
College of Engineering Northrop University Inglewood, CA	Development of computer graphics curriculum to improve engineering students' visualizations of math and science concepts
Physics Dept. Eastern Kentucky University Richmond, KY	Development of didactic methods, e.g., computer-aided physics lecture demonstrations
Biology Dept. University of Houston Houston, TX	Development of computer-based problem-solving curriculum in general biology
Temple University Philadelphia, PA	Development of computer-based instructional model that utilizes visual material for teaching basic concepts
York University Downsview, Ontario Canada	Computer applications for music curriculum

Graduate School of Education Harvard University Cambridge, MA	Development of software in the field of information technology
Boston University Computer Graphics Center Boston, MA	Development of computer-based geometric graphics project
Animation Workshop UCLA Los Angeles, CA	Development of new, low-cost animation techniques
Instructional Technology Center U.C. Berkeley Berkeley, CA	Development of computer-based humanities curriculum

Special Ed./Vocational Ed. 4

School District II Colorado Springs, CO	Development of computer-based language program for gifted elementary students
Dept. of Rehabilitation Sacramento, CA	Development of computer education curriculum for the severely physically handicapped
San Rafael City Schools San Rafael, CA	Product development in foreign languages, math, vocational education for gifted and handicapped students
Graff Area Vocational Technical Springfield, MO	Development of instructional module for training electronic technicians

Informal Education 4

DAWN Provo, UT	Development of a computer-based instructional series that integrates phonics, reading, and spelling and can be used by all age groups either in school or at home
Wehr Nature Center Hales Corner, WI	Development of new environmental software and tested in a midwestern nature center

NEW PRODUCTS (cont.)

Gary Yost (individual person grant) San Francisco, CA	Testing and refinement of Atari hardware and software by hospitalized computer programmer
WNET/THIRTEEN New York, NY	Development of educational software to accompany a 6-part TV series on "The Brain"

TOTAL: 33

IMPORTANT RESEARCH

PROJECTS	NO.	TYPE OF RESEARCH
Early Childhood	2	
CEDEN Austin, TX		A study on the use of microcomputers to facilitate parent-child interactions in an Hispanic barrio community
Bing School Stanford University Stanford, CA		Studies of the effects of computers on the cognitive growth and self-concept of young children
Elementary/Secondary	1	
Educational Testing Service Princeton, NJ		Research on the effects of computers on: —job skill aptitudes —screen learning —animation and learning —animation and motivation —interactive statistics —computer assisted instruction —networks as delivery systems for K-12th grade students
Higher Education	7	
Dept. of Psychology Stanford University Stanford, CA		A study on the cognitive and social/motivational effects of computers on school children
Graduate School of Business Stanford University Stanford, CA		A study of the use of computers as a management and teaching tool in business
Bank Street College of Education New York, NY		Research on how microcomputers influence elementary school children's learning
California State Univ. Fullerton San Pedro, CA		Research on the computer's role in the development of problem-solving and critical thinking skills in young children
Dept. of Educational Psychology Temple University Philadelphia, PA		An exploratory study on the education and training potential of Atari computers

Harvard University School of Education Cambridge, MA	Research on the role of microcomputers in the field of interactive technology
Mills College Oakland, CA	A study on the effects of video games on the family and individual family members
Special/Vocational Education 5	
Prader-Willi Syndrome Association Portola Valley, CA	A study on the use of computers as an educational tool for children with prader-Willi Syndrome
Veterans Administration Medical Center Palo Alto, CA	Research on computer applications for the diagnosis and treatment of brain disorders
Winston Preparatory School New York, NY	A study on the use of computers for rehearsal strategies for learning disabled students
Rehabilitation Institute of Chicago Chicago, IL	Research on the effects of video games on the rehabilitation of brain-damaged patients
Dr. David Kirschen Fullerton, CA	Research on the use of video games to develop normal vision in children with amblyopia
Informal Education 1	
Dallas Public Library Dallas, TX	A study conducted by a public library to identify appropriate instructional techniques on the use of computers for different ethnic and age groups

TOTAL: 16

PUBLIC RELATIONS AND PUBLIC IMAGE

I. DONATIONS OF COMPUTERS FOR:

COMPUTER LITERACY	No.
Elementary Schools	6
High Schools	3
Colleges/Universities	1
Museums	6
Libraries	3
Mobile Vans	2
Foundations/Educational Programs	6
Prisons	1
TOTAL:	28

Number of individuals exposed to hands-on computer demonstration or instruction (range): 20 to 250,000

OUTSTANDING ACHIEVEMENT

Winners of national competition on personal computing to aid the handicapped

II. SPECIAL PROJECT

PENINSULA ACADEMY/URBAN COALITION

Atari employees volunteer to serve as mentors and role models for underachieving high school students

III. PUBLICITY

NEWSPAPER ARTICLES RE: AIEAR PROJECTS	41
AIEAR INQUIRIES RESULTING FROM MEDIA PUBLICITY	35

FUTURE PRODUCTS AND EDUCATIONAL INNOVATION

FUTURE PRODUCTS/EDUCATIONAL INNOVATION	No. Products
Networking	7
Model Schools/Programs/Projects	11
Advisories/Training Models	3
Children's Products/Software Development	4
Simulations	2
TOTAL:	27

1983 Grantees

NEW PRODUCTS
DEVELOPMENT, TESTING, REFINEMENT

PROJECTS	PRODUCTS/OUTCOMES
Early Childhood	
Family Communications, Inc. Mr. Rogers' Neighborhood Pittsburgh, PA	To develop software and/or videogames to help pre-school children and their families cope with everyday emotional concerns, themes being considered are: self-esteem separation and return, expression of emotions, etc. The games would be cooperative and foster interaction between family and friends.
CEDEN Austin, TX	Extension of an innovative computer education program in an Hispanic barrio in Texas and the preparation of three videotapes for the purpose of training and replication of educational model.
Elementary/Secondary	
Momo's Press San Francisco, CA	To create an instructional model for the multiple use of affordable and accessible Word Processor Program in interactive learning, creative writing, and small press publication environments.
George Washington H.S. Denver, CO	Expansion of a current grantee's innovative computer lab to continue the development of new products, such as, bi-lingual software programs and to establish an electronic networking system with other related creative projects.
Rowland High School Rowland Heights, CA	Expansion of an innovative animation class to enable students to use computers to create sophisticated, state-of-the-art animation films.

Parapsychology Research Group San Francisco, CA	To develop cooperative biofeedback games and simple, inexpensive hardware to safely interface two subjects to an Atari computer via the existing game paddle input ports. The hardware will be capable of measuring peripheral skin temperature and galvanic skin response. The developers will story-board and test software which they will write for a cooperative color graphic game.

Higher Education

Creative Writing Dept. Pen-Southwest, University of Houston and Pen American Center New York, NY	To use different word processing programs with practicing and aspiring writers to provide feedback to Atari on how writers use word processing and how the products can be improved.
Dickinson College Carlisle, PA	To develop an innovative set of "Science Kits" for use on the Atari computer which include peripheral attachments, software and printed materials that are being distributed by Atari.
Roosevelt University Chicago, IL	To create an innovative computer camp for urban low-income, minority children and their paretns. This project has the potential for being a replicable model for similiar populations.

Informal Education

Impression 5 Museum Lansing, MI	To develop a software program for the Atari computer that will enable visitors to experiment with trees and their growth at Michigan's largest Science Museum. The developers will also demonstrate how the results can be used for aesthetic and practical purposes.
Interactive Image Technology Toronto, Canada	To develop an interactive videodisc for group particpation based on the film "Cosmic Zoom".

Central Park Historical Society New York, NY	To review and select software most appropriate for low-income children that can be integrated into the Society's program activities.
Maria Montessori Farmschool Half Moon Bay, CA	To train local community members on how to use Atari computers within the framework of a Montessori curriculum.
Teachers & Writers Collaborative New York, NY	To develop ideas for new software that brings artistic and innovative teaching strategies into the classroom and expands the potential of computer assisted education.
Los Angeles Student Film Institute Los Angeles, CA	To develop a traveling van program within Los Angeles county to provide a visual literacy curriculum, i.e., "hands-on" experience in the use of computers for animation.
Cultural Council Foundation New York, NY	To use Atari computers for the arts management needs of the council, train staff on capabilities of Atari computers, and develop new software and modify existing software for arts management.
Informal Education	
Chesapeake Bay Center for Environmental Studies Edgewater, MD	To review current materials and develop activities and new materials that prepare parents and children to use computers in a home-centered individual and family group science learning environment.
Special Education	
Center for Learning Technology Newton, MA	To do additional testing on current hardware/software combination with handicapped children; develop and test additional software; adapt to the Atari system other existing software; develop and test additional hardware devices and/or adapt hardware configuration to meet the needs of the handicapped population.

IMPORTANT RESEARCH

PROJECTS	TYPE OF RESEARCH
Elementary/Secondary Research	
Chama Valley Independent Tierra Amarilla, NM	To increase awareness motivation and interest of low-income minority, rural students in science and mathematics through computer literacy.
Burlington Little School Burlington, WA	Through the study of ancient history, students in grades 1 through 6, organized their own "mini-society", complete with social, economic and political systems. Atari computers will be used in a variety of ways to run the "society" more efficiently and teach children the multiple uses of computers.
Cambridge Montessori School Cambridge, MA	Cambridge Montessori School is the newest school addition to the Sister School Project, an innovative national networking project linking schools with different educational philosophies.
Special Education Research	
Chandler Tripp School San Jose, CA	To give access to computers for orthopedically handicapped children who have normal mental and digital skills and explore ways the computer can be used to facilitate communication for those with difficulties in speech or hand control.
Higher Education Research	
World College West Sausalito, CA	To systematically explore the implications of computer usage in all aspects of an experimental college's program and structure and to implement the findings of the exploration. World College West has designed a rigorous program that is problem centered, international in focus and seeks to anticipate the future.
Philadelphia College of the Performing Arts Philadelphia, PA	To establish the first ongoing research center to study the varied potentials for integrating computer technology and the arts. The research will be conducted by teams of artists, scientists, teachers, students and microcomputer specialists.

Informal Education Research

Aaron Marcus & Associates (Special Person Award)	To conduct research on the application of typographic, artistic and graphic design principles to the development of computer information systems.
Minnesota Children's Theatre Company & School Minneapolis,MN	To integrate computers creatively throughout the theatre, to use computers to increase youth interaction with theatre professionals and to develop computerized controls over presentation/learning spaces.
LUCHA Austin, TX	To use the computer as an art tool; i.e., Chicano visual and musical arts will be broken down into instructional components to teach children and adults about their culture and to make the computer psychologically, emotionally and physically accessible to the barrio.

Computer Donations - Public Relations/Educational Equity

Highlander School
East Oakland Youth Development Center
NYC Mission Society Cadet Corps
Hampton Day School
South Valley Carden School
Mills College - Children's School

For Outstanding Achievement

Northwest Regional Educational Lab
International Computer Educational Games Contest

Institute - Foundation Collaboration

Social Policy Corp. New York, NY	To establish a collaborative relationship with the New World Foundation for future joint funding of projects.

SISTER SCHOOL PROJECT
Atari Institute

DESCRIPTION OF INTENT & EXPECTATIONS:

We are at a point in our human history where important changes are taking place - an evolutionary process in our educational system. The introduction of technology into the classroom permits, never before, so easily accessed information; supplemental and generative materials; individualized learning; and, direct vocational development opportunities.

In urban areas and their metropolitan industrial suburbs, the schools and their districts have the benefit of exposure to the technology, community awareness and support regarding its educational priority.

In rural, agricultural areas, the technology is not easily available - exposure is limited. But the children educated in these circumstances will, by necessity, live, work and compete in an age transformed by a technology outside the realm of their daily educational experience.

As developers of technologies that are producing this marked dynamic shift in education, we see a responsibility to influence the use of that technology with responsibility and equity.

To insure equal educational opportunities for all students, we are seeking viable solutions to narrow the educational chasms developing between the technologically rich and technologically illiterate populations.

The aforementioned statement of need is the basic concept upon which the Atari Institute Sister School Project is based. How to make the technology available to teachers and students in areas with limited technological resources and support. How does a teacher actually introduce and implement a computer into a classroom and curriculum? Can an electronic network be a viable support system? Will exchanged and shared curriculm enhance learning motivation? What kinds of student initiated projects will result? How long will it take a teacher to become technologically proficient to become a resource person for another teacher only at the awareness level of computer literacy.

The Sister School Project was initiated on a pilot scale September 1982. For management and trouble-shooting reasons, the schools are in proximity to one another with the exception of one (experiment with distance). Several telecommunication educational networks have been made available to the participants. The schools are designed "Big Sister" or "Little Sister" according to the technological expertise of the classroom teacher. Little Sister schools have been given full Atari 800 systems with telecommunications hard/software to access the network linking them to the Big Sister school. Big Sister schools are provided with the same equipment. If they already have an Atari system, they receive specifically requested peripherals and software. The Atari Institute, along with providing the equipment, pays for the special phone installation and communication costs between the schools.

Two major meetings are planned for the school year, involving all project participants and special resource personnel. To support the network, three "master teachers", winners of the Teacher of the Year program for the past three years, are made available to the Sister School teachers via the Education USA Newsline network, along with volunteer consultants from within Atari corporate. Other resources are made available to participants on an individual request basis.

The implementation of the resources, of course, rely on the wisdom, enthusiasm and talent of the individual teachers. All teachers involved in the projects have been selected with the qualities mentioned in mind. There are no Institute "directives" for the project. It is purposefully open-ended - creativity flourishes with freedom of expression. All that is formally requested of the teachers is that they keep a journal of all activities directly and indirectly related to the project, provide the Institute with periodic reports, work together, and enjoy the equipment. Institute staff makes site visits to the schools and attends special parent/teacher and community meetings.

It is our sincere hope that the Sister School Project prove to be not only a partial, practical solution to the problem of equity in education, but also a vehicle to creatively expand the definitions of "classroom", "student", "teacher"; promoting the evolution of consciousness in relation to the process of learning and teaching.

SISTER SCHOOLS

Terra Nuova Montessori School
628 Schafer Road
Hayward, CA 94544
415/783-7640
Teacher: Sara Armstrong

Our Lady of the Rosary
666 B Street
Union City, CA
415/471-7316
Teacher: George Amy

Pelton Middle School
45 Conkling Street
San Francisco, CA 94124
415/648-5932
Teacher: Darryl Crocker

San Francisco Community Alternative School
3630 Divisidero Street
San Francisco, CA 94123
415/922-6195
Teacher: Ross Snow

Maharishi International University Childrens' School
Maharishi International University
Fairfield, IA 52556
515/472-4128
Teacher: Ellen Keener

Foresthill Elementary School
24750 Main Street
Foresthill, CA 95631
916/823-6222
Teacher: Graham Rankin

Gazebo School
Esalen Institute
Big Sur, CA 93920
408/667-2543
Teacher: Jim Doty

*Kaiser School
25 South Hill Court
Oakland, CA 94618
415/841-5547
Principal: Bob Kelley Thomas

*January '83 addition
**September '82 - January '83

**RESULTS

Increased sales in the Catholic school system on Peninsula and Berkeley areas.

Development of communication disk.

New software author.

Model for San Francisco school district public school networking plans.

Counter to the "big corporation not interested in the ordinary schools and teachers" argument at conference presentations.

Addresses important issue of equity in regard to access of technology.

Sales in rural school district.

Exposure in midwest.

Research regarding computer education from diverse applications according to educational philosophies.

Impact Montessori educational network.

Humanistic and responsive reputation for the corporation.

Facilitate development of Atari's reputation as serious learning tool.

The Project

The Home-School Computer Network project is a joint venture of the Atari Institute for Educational Action Research, Picodyne Corporation, and the Mountain View-Los Altos Union High School District. This network will make it possible for parents to have access to important school counseling and guidance information about their youngsters. This project is based on the assumption that about 90 percent of our residents will have home computers in the next decade. The second assumption is that parents will be in a better position to assist their youngsters in school if more information were available to them. The third assumption is that school counselors will be able to spend more time interacting with students on a personal level if the routine tasks of guidance were mechanized.

The System

The system calls for a central microcomputer which will store pupil personnel records and guidance information. Attached to the central computer will be a high-speed printer to provide copies of records as needed. Each counselor's office will have a microcomputer which will be linked to this central system. Counselors will be able to develop and change student schedules and call up pupil personnel information, e.g., transcript, master class schedule and enrollments, attendance records, etc. Parents may, by telephone, have access to their youngsters' school guidance records. The expansion of the system is only limited by the imagination and creativity of those who use the system. The counseling-guidance program is only one phase. The library, the classrooms, and the departments are other phases which could provide the home with valuable school information.

The Information

A parent dialing in will be presented with a "menu." This menu will consist of a list of categories of information such as college entrance, graduation requirements, financial aid scholarships, career guidance, and the school's curriculum. The parent may then select the particular category as it relates to his/her youngster. Information will be basically of two types. One will be of the recall nature, and the other will call for an analysis. The recall type will be straight information giving, e.g., transcript, attendance, course information, etc. The analysis type will call for a review of that particular student's records against a given standard, e.g., graduation requirements, college entrance, financial aid scholarships, college selection, etc. For example, in the area of college entrance requirements, the computer will be programmed to make an analysis of the student's academic record for entrance to the University of California. The analysis will report the courses which have been completed or must be taken in order to meet the admission requirement and the grade point needed in these classes. Such an analysis will be available after each semester so the student whose goal is to enter the University of California system may have an up-to-date report on his/her progress toward meeting the requirements.

The Funding

The Atari Institute for Educational Action Research has made donations of $60,000 and the Atari hardware needed to implement the system. Picodyne Corporation, a designer of customized computer systems, is responsible for the installation of equipment and the software design. The Mountain View-Los Altos Union High School District staff will work with Picodyne in program design and data input.

The Timeline

Current projected timeline calls for the testing of the system at each school site in the spring of 1983. The counseling and guidance phase of the system should be operational in the fall of 1983.

The Principal Collaborators

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Dean Brown, President, Picodyne Corporation, 3000 Alpine Road, Ladera, CA 94026, (415) 854-3088
Paul Sakamoto, Superintendent, Mountain View-Los Altos Union High School District, 1299 Bryant Avenue, Mountain View, CA 94040, (415) 968-6571

Mtn. View-Los Altos Union High School District • Atari Corporation • Picodyne Corporation

Home-School Computer Network

A Joint Venture

ELECTRONIC LEARNING

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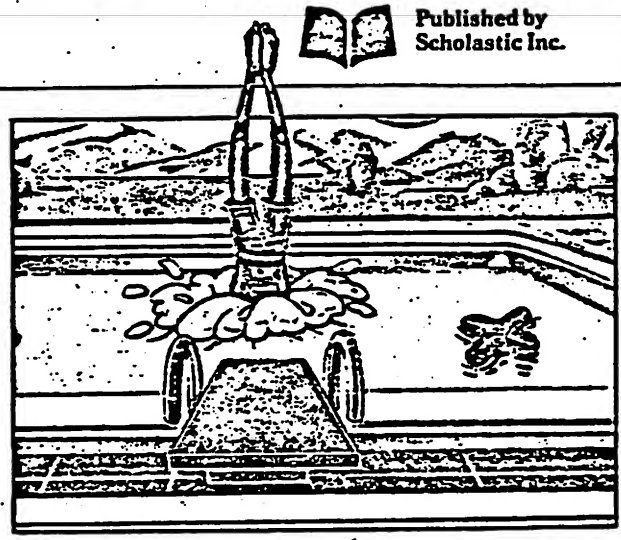

Features

Columns

Departments

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THE MOUNTAIN VIEW-LOS ALTOS UNION HIGH SCHOOL DISTRICT

MOUNTAIN VIEW, CALIFORNIA

This district's home-to-school computer networking project may someday make report cards obsolete—and the project's possibilities don't end there.

What do you do when you discover you have a tremendous amount of information about the performance of each student in your school, but no efficient, meaningful way to share it with the student's parents? At the Mountain View-Los Altos Union High School District, the answer was to develop a unique pilot project that uses microcomputers and modems to let parents and students communicate with the guidance department—without ever leaving their homes. This Home-School Computer Network Project (HSCN), as it's been dubbed, began its trial run at the two high schools in this Silicon Valley district just this past March. But already the district plans to expand the network to handle attendance and grade reporting, library bibliographies for student research, and more (see the timetable on page 30). What's more, Superintendent Paul Sakamoto, who conceived the project, says he even foresees the day when "quarterly report cards are obsolete."

Superintendent Paul Sakamoto demonstrates his district's Home-School Network Project to two Los Altos students.

How the System Works

The heart of the HSCN system is a powerful (256K) Onyx microcomputer with a 20 megabyte hard disk drive. This central computer, which holds the networking software and stores the guidance data to be accessed, is located in the Los Altos High School Los Altos, CA, and is connected to a phon line through a modem. Atari 800 microcom puters are located in the guidance offices both the Los Altos and the Mountain Vie high schools, allowing the staff to input an access data as necessary.

When a student or parent wants access t guidance department information via the own home computer, he or she simply dia the proper phone number and calls up th HSCN menu. (Before the menu appears o the screen, the user automatically "receives the Mountain View-Los Altos electronic bu letin board, with details of upcoming event ranging from PTA meetings to schoo dances.)

When the menu comes on the screen, th user is given a choice between two types information:

1) **Recall.** This is straightforward dat such as a student's transcript, attendan reports, and course information.

2) **Analysis.** This is when the us requests a review of a student's work again a given standard—e.g., graduation requir ments, admissions standards for a particul school, or state financial aid guidelines.

The system, which allows the use of pra tically any popular home computer, can ha dle up to five calls at the same time. It tak roughly one minute for a requested progra to be loaded from the central Onyx co

(Continued on page 3

THE MOUNTAIN VIEW-LOS ALTOS UNION HIGH SCHOOL DISTRICT AT-A-GLANCE

Location: Mountain View High School is in Mountain View, CA; Los Altos High School is in neighboring Los Altos, CA.

Enrollment: 3,206, combined, grades 9–12.

Guidance Staff: 5 counselors at Mountain View, 6 at Los Altos.

Total Budget: $10.9 million, combined.

By Art Dudley

Art Dudley is an Assistant Editor on the staff of Electronic Learning.

Photo by Mark Tus

PROJECTED USES OF THE MOUNTAIN VIEW-LOS ALTOS UNION DISTRICT'S NETWORKING PROJECT

The Home-School Computer Network

Since the Mountain View-Los Altos networking system was conceived to help the district's guidance staff, that phase of the system is being implemented first. But now that the basic network has been established, putting it to work in other areas will be a relatively simple matter of inputting adc tional data and, for some applications, inves ing in a few more computers.

The accompanying table describes the d ferent possible phases of the networkir system (as conceived so far), with estimat of the implementation dates for each.

APPLICATION	IMPLEMENTATION DATE
Counseling/Guidance Parents and students can access student transcript data as either straightforward information or in the context of requirements for graduation, scholarships, or college admission.	Fall, 1983
Attendance School personnel or parents can have immediate access to a student's overall attendance record, or can determine if a student is indeed present on a given day.	Late Fall, 1983 or Spring, 1984
Grade Reporting Parents can access grade information as an alternative to quarterly report cards.	Spring, 1984 or Fall, 1984
Library Bibliographies, Internal For research purposes, students can use home computers to direct them to particular books and reference materials located in the district's two libraries.	Fall, 1984
Library Bibliographies, External Same as above, only including public and college libraries in the area.	Winter, 1984 or Spring, 1985
Student Assignments Students can receive assignments and turn in completed work from their home computers.	Fall, 1985

(Continued from page 28)

puter to each individual user's micro.

Present Obstacles—and Future Possibilities

A school-to-home networking program such as this has one obvious drawback: Its success is based on the assumption that area families own home computers—not to mention modems. Sakamoto recognizes this problem, but remains optimistic. "Currently, 18 percent of the parents in our school district have micros," he says. "Plus, statistics indicate that, within five years, that figure will be more like 90 percent."

The district has also taken steps to make sure that families who don't have computers will still have access to this system. Of the 25 microcomputers that were originally donated by Atari for the project, at least four will be set aside in the Mountain View High School library, for overnight loans.

Obviously, a system like HSCN would not have been possible even a few years ago—and its existence today owes much to decreasing hardware prices. But what about the cost of the special networking program? Isn't it true that, while hardware prices are going down, software costs are escalating? According to Dean Brown, president of the Picodyne Corporation, which has been responsible for designing the software, installing the system, and serving as on-going consultants, that cliché holds little or no truth. He points out that a number of other school districts in the area have already expressed an interest in setting up their own projects of this type.

"Of course, this is still a trial period," says Sakamoto. "But if the system proves itself, I can't see why other districts wouldn't jump at it. In California alone, school guidance departments were hit hard by personnel and budget cuts resulting from Proposition 13. Our new system will never replace counselors, who are more important now than ever. But it can eliminate the drudgery work, and free up their time for more important tasks."

Even though the project's official debut isn't until this fall, Sakamoto looks forward to trouble-free operation. And if a problem should arise, Sakamoto is confident it will serve as a learning experience. "After all," he points out, "when I first got the idea for this system, I was sitting in my car in a hopelessly stalled, bumper-to-bumper traffic jam. So you see, something good can come out of even the most difficult tangles."

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